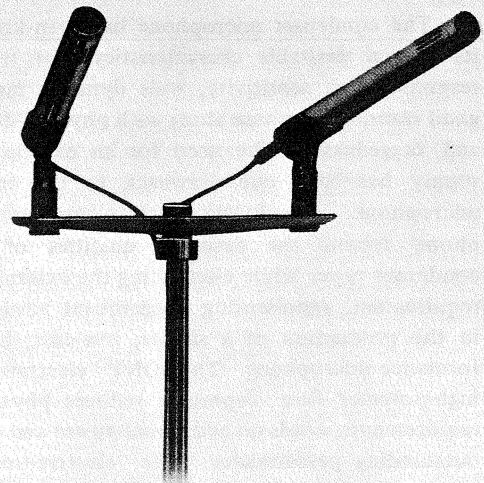


# ECM-21/2021



ECM-21



ECM-2021

## SPECIFICATIONS

Type:	Electret condenser microphone		
Battery:	SONY super size "AA" battery EVEREADY 1015, manganese battery EVEREADY E-91 alkaline battery EVEREADY E-502, E-9 mercury battery		
Frequency Response:	50 ~ 12,000 Hz (30 ~ 20,000 Hz DIN)		
Output Level:	Output impedance	600 $\Omega$	250 $\Omega$
	Effective output level *(1)	-53.8 dBm	-53.6 dBm
	Open circuit voltage *(2)	-50.0 dB	-53.8 dB
	EIA rating GM *(3)	-147.8 dB	-145.6 dB
	Note: *(1) 0 dB = 1 mW/10 $\mu$ bar at 1 kHz *(2) 0 dB = 1 V/10 $\mu$ bar at 1 kHz *(3) EIA standard SE-105		
Directivity:	Uni-directional		
Output Impedance:	50, 250, 600 $\Omega$ at 1,000 Hz		
Power Supply:	Nominal operating voltage 1.5 V Minimum operating voltage 1.1 V Current Drain 130 $\mu$ A maximum Battery life: more than 10,000 hrs. with SONY super size "AA" or EVEREADY 1015 more than 7,700 hrs. with EVEREADY E-91 more than 15,000 hrs. with EVEREADY E-502 or E-9		
Noise Level:	S/N Ratio: better than 46 dB (1 kHz, 1 $\mu$ bar) Inherent noise: less than 28 dB SPL (0 dB = 2 x 10 <sup>-4</sup> $\mu$ bar)		

Wind noise:  
50 dB  $\pm$  5 dB SPL \*(4)  
Induction noise of external magnetic field: 5 dB/m gauss \*(5)

### Note:

\*(4) Wind noise is the value measured by applying a wind velocity of 6.6 ft from all directions to the microphone.  
The mean value is taken and converted to the equivalent input sound level. (0 dB = 2 x 10<sup>-4</sup>  $\mu$  bar)

\*(5) The external magnetic field induction noise is measured with the microphone placed in the alternating magnetic field of 50 Hz, 1 milligauss.  
The maximum noise value is taken and then converted to the equivalent input sound level. (0 dB = 2 x 10<sup>-4</sup>  $\mu$  bar)

### Maximum Sound

Pressure Input Level: more than 126 dB SPL

Dimensions: 0.75" dia x 6.7" (1.9 cm dia x 17 cm)

Weight: 4.9 oz (140 g) w/3 m cord (ECM-21)  
7.4 oz (210 g) w/6 m cord (ECM-21)  
17.8 oz (505 g) w/stereo arm (ECM-2021)

# SONY®

## SERVICE MANUAL

## 1. TECHNICAL FEATURE

### Electret Condenser Microphone

The condenser microphone has been known for its several desirable characteristics: flat frequency response, high sensitivity, wide dynamic range, and good transient response along with physical durability and ruggedness. The need for an external power supply has been one drawback to the condenser microphone. The SONY electret condenser microphone retains the desirable qualities of regular condenser types while eliminating the external power requirement, representing a significant advancement in the production of a simple, low-cost, high performance microphone. The SONY "electret-treated" high-polymer film diaphragm reduces physical size requirements, needs no additional power and provides outstanding performance. The "electret-treatment" is based on the fact that certain materials, when placed in a high potential electric field, retain an electric polarization when removed from the field. Extensive research by SONY engineers has developed the electret principle to an advanced state of stability unattainable until now.

Another milestone is the built-in impedance-translator amplifier which uses a Field Effect Transistor (FET). The combination of the electret-condenser with FET amplifier results in a microphone product representing the most advanced state-of-the-art development. Following is a summary of engineering features made possible by these advances in microphone manufacture:

1. High sensitivity for small size (minimum diameter available is as small as 7 mm).
2. The light weight of the diaphragm assures higher fidelity.
3. Noise from any possible vibration is minimized.
4. FET as an impedance translator assures low noise, highly sensitive and stable performance.
5. The dynamic range is very wide (92 dB or greater).

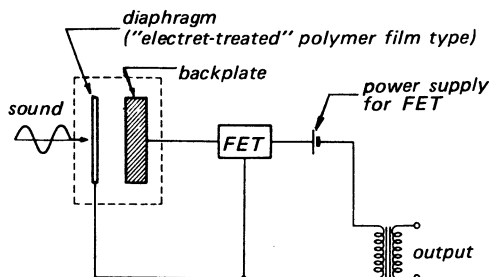


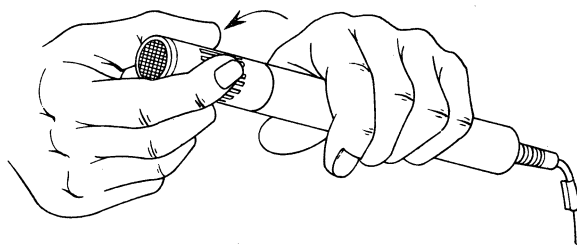
Fig. 1-1. Schematic in principle

## CAUTION

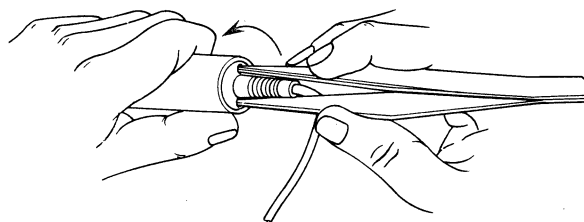
Keep this microphone away from extremely high temperature (140°F, 60°C or more). Especially do not place it in closed automobiles parked in direct sunlight.

## 2. DISASSEMBLY

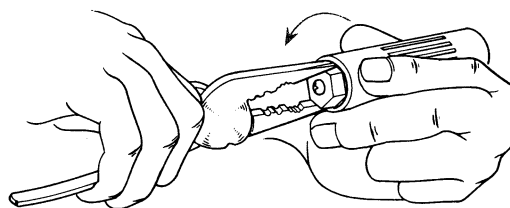
### 2-1. Top Cover Removal



### 2-2. Capsule Removal



### 2-3. Main Case Removal



## 3. SELECTION OF OUTPUT IMPEDANCE

If you desire to change the output impedance, proceed as follows. (The output impedance is set to 250Ω at factory.)

1. Remove the main case ass'y following the main case ass'y removal described in step 2-3.
2. Unsolder the red lead wire from the 250Ω terminal and solder it to the desired terminal.

**Note:** Do not unsolder other lead wires.

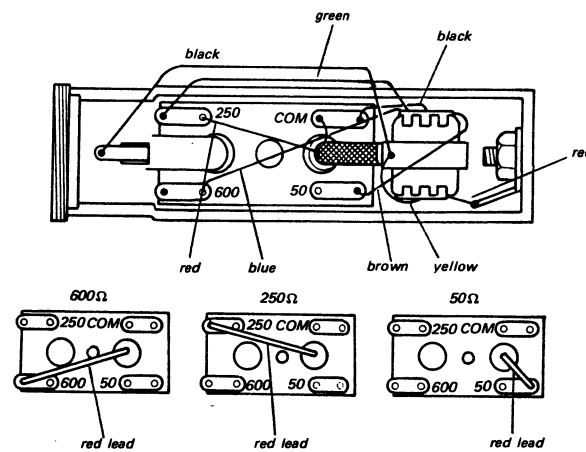
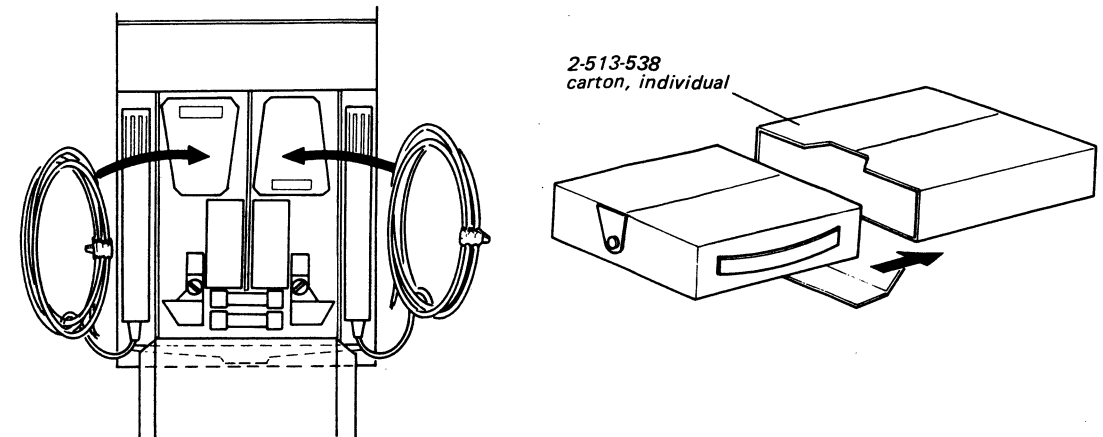


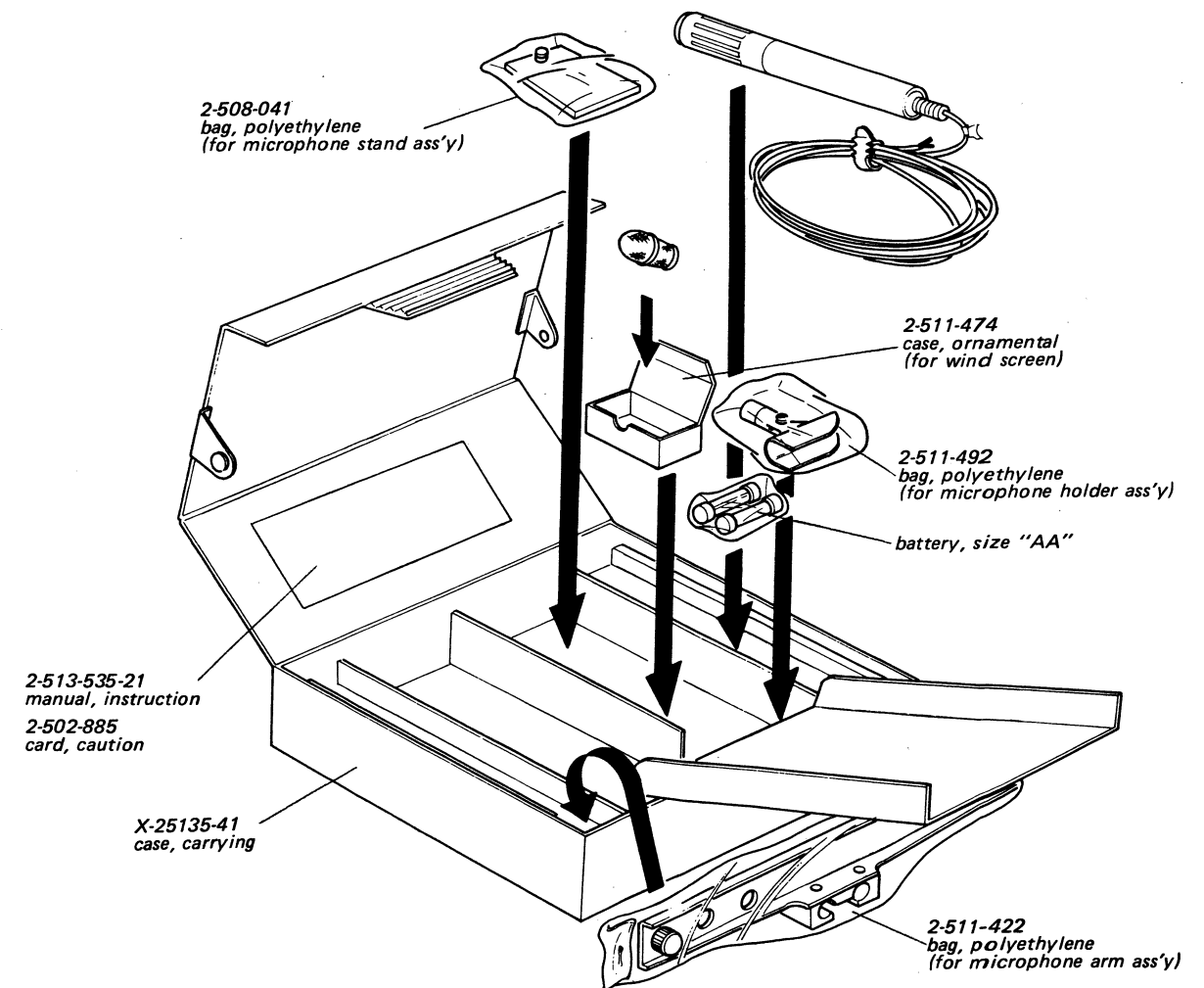
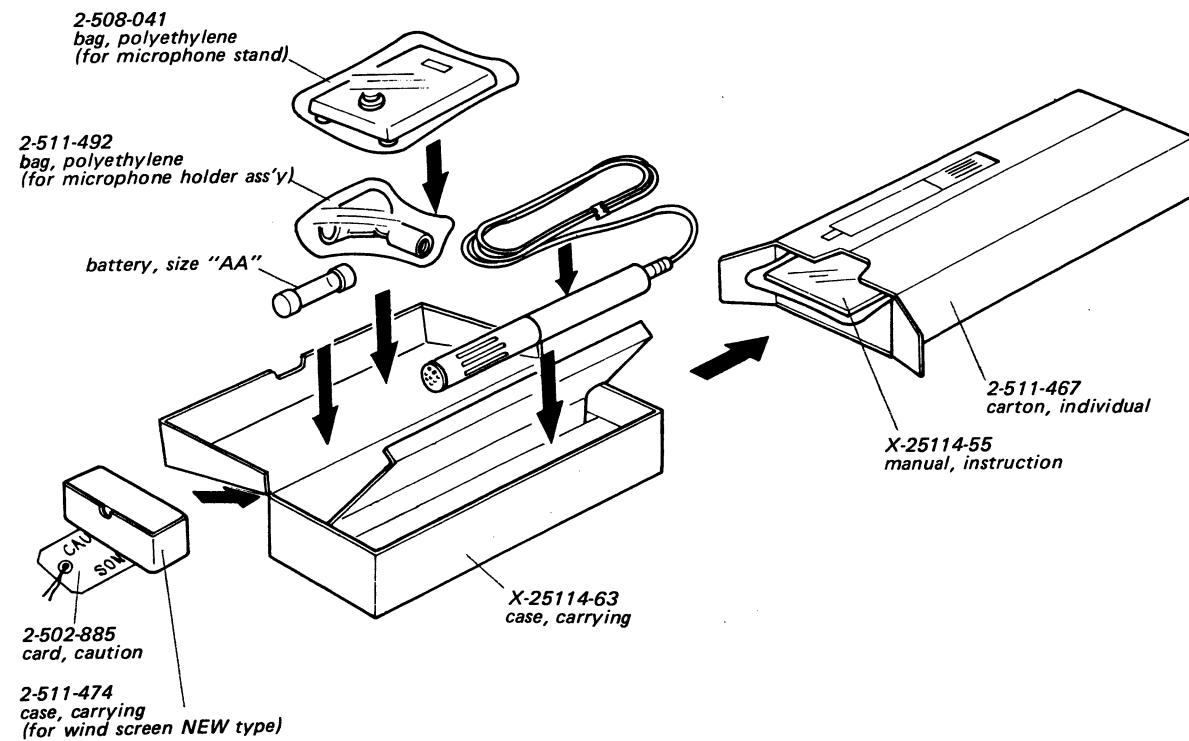
Fig. 3-1. Connection diagram

## 4-2. ECM-2021

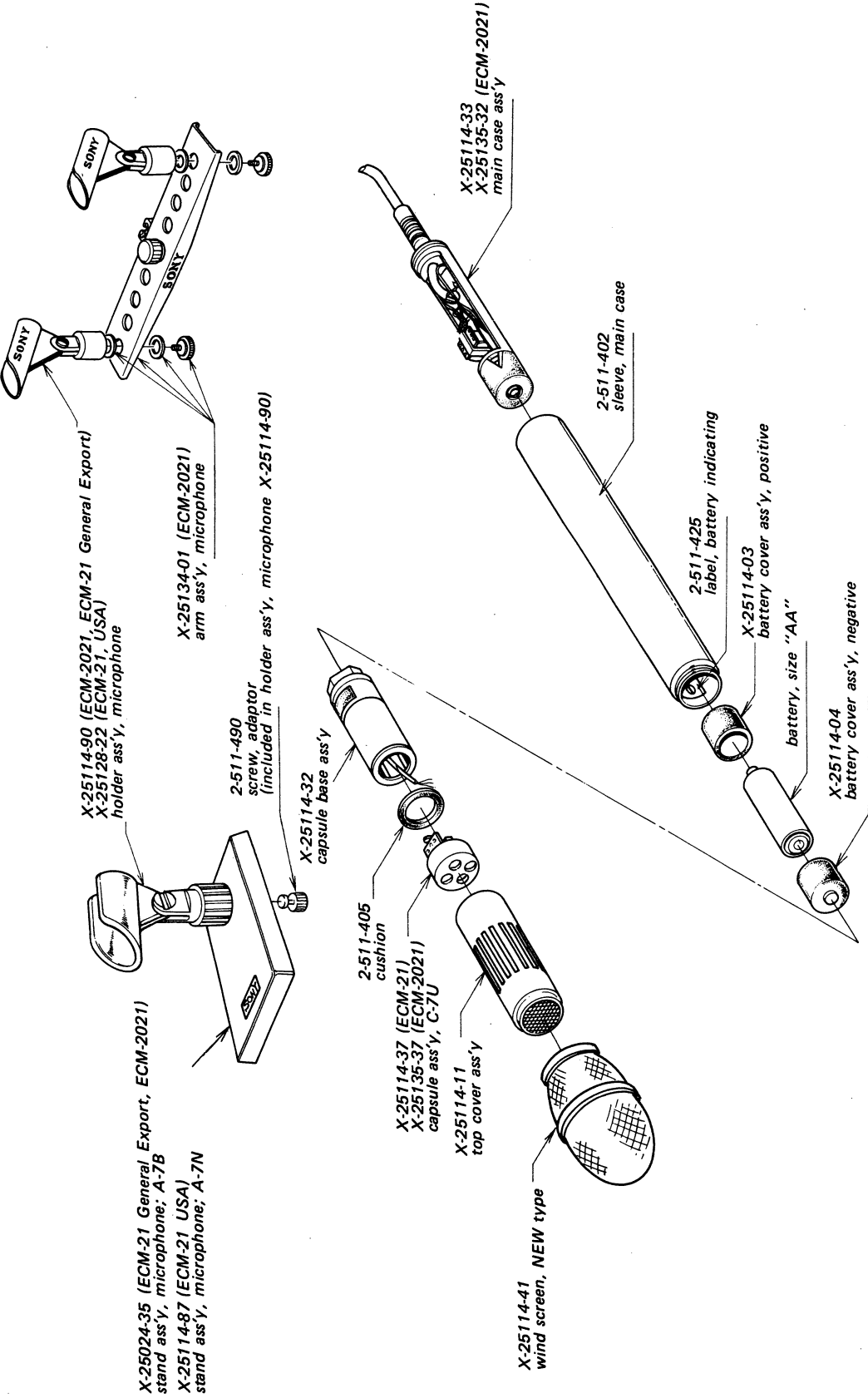


## 4. PACKING

### 4-1. ECM-21



5. EXPLODED VIEW



Note: ECM-21 is General Export and USA Model.  
ECM-2021 is General Export Model only.

SONY CORPORATION

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